

## REMARKS/ARGUMENTS

### *Status of the Claims*

Claims 1-33 are pending. Claims 3, 11, 20-31 have been withdrawn. Claims 32 and 33 are new. Support for the enthalpy of formation values in claims 32 and 33 can be found at page 5 lines 11-13

### *Claim Rejections – 35 USC 101*

The Examiner has rejected claims 1, 2, 4-10 and 12-19 under 35 USC 101 because the claims allegedly lack patentable utility. The Examiner states that “at the present time, there is no evidence of record that would indicate that the broadly claimed ‘X-nitro compounds’ have the utilities set forth in the specification.” The Examiner also states that “nowhere in the specification have Applicants demonstrated the alleged biological activity of the claimed compounds.”

Applicant previously submitted a copy of US Provisional Application No. 60/890,167, filed February 15, 2007 (“167 Application”) by way of the declaration of Richard F. Trecartin to demonstrate the utility of X-nitro compounds.

By way of this supplemental response, Applicant submits the Declarations of Ralph J. Bernacki and Susan J. Knox.

### *Dr. Bernacki's Declaration*

Dr. Bernacki's declaration traces: (1) the testing of a number of high energy nitro compounds against HT29 cancer cells, (2) the identification of a subgroup of nitro compounds that have an IC 50 less than 1 mM, (3) the selection of a subgroup of dinitroazetidine compounds for further testing (4) the selection of ABDNAZ based on its activity against HT29 cells as compared to cisplatin, (5) the testing of ABDNAZ, as compared to cisplatin, against human glioblastoma cancer cells (SNB75 and U87); human prostate cancer cells (DU145); human colon cancer cells (HT29); murine squamous cell carcinoma cells (SCC VII) and a promyelocytic leukemic cell line (HL-60); and (6) the efficacy of ABDNAZ as compared to cisplatin in a mouse tumor model containing SCC VII cancer cells. Dr. Bernacki concludes that there is a nexus between

such results and the disclosure in the specification and that it is likely that compounds such as ABDNAZ can be successfully used in human clinical trials.

**Dr. Knox's Declaration**

Dr. Knox's declaration addresses the activity of ABDNAZ in a hypoxic environment. According to Dr. Knox, hypoxic tumor cells are far more resistant to radiation treatment than normoxic tumor cells because of the low oxygen concentration. Radiation treatment requires oxygen in order to form reactive oxygen species (ROS) that cause cell death.

In the case of ABDNAZ, it can be reduced in a hypoxic environment to produce therapeutic radical species. In addition, ionizing radiation can be used to produce therapeutic radical species. In a normoxic environment, such radical species interact with water and oxygen to produce radical species that result in conventional ROS mediated cell death.

Based on these results, Dr. Knox is of the opinion that high energy nitro containing compounds, such as ABDNAZ, have a high probability of being used successfully in human clinical trials to treat tumors, containing both normoxic and hypoxic tumor cells, either alone or in combination with radiation therapy.

Based upon the declarations of Dr Bernacki and Dr. Knox, it is submitted that the claimed invention has utility and that this rejection should be withdrawn.

***Claim Rejections – 35 USC 112, 1st paragraph (written description)***

The Examiner has rejected claims 1, 2, 4-9 and 12-19 under 35 USC 112, 1st paragraph, for allegedly failing to comply with the written description requirement.

The Examiner claims that the Applicants have failed to provide any reasonable specific structural characteristics, chemical formula, names or physical properties that would provide adequate written description of the genus of X-nitro compounds.

Applicant previously amended the claims to limit X-nitro compounds to nitrocarbons, nitroamines or a combination of nitocarbon and nitroamine.

Claims 32 and 33 have been added by way of this supplemental response for the Examiner's consideration. These claims further define X-nitro compounds by their enthalpy of formation. In claim 32, the enthalpy of formation of the X-nitro compound is between about 5 kcal/mole and about 150 kcal/mole. In claim 33, the enthalpy of formation is between about 10 kcal/mole and about 110 kcal/mole.

***Claim Rejections – 35 USC 112, 1st paragraph (enablement)***

The Examiner has rejected claims 1, 2, 4-9 and 12-19 under 35 USC 112, 1st paragraph, for allegedly failing to comply with the enablement requirement.

Previously, Applicant submitted the '167 Application, which shows positive *in vitro* and *in vivo* results for ABDNAZ in various cancer models.

By way of this supplemental response, Applicant submits the declarations of Dr. Bernacki and Dr. Knox.

Dr. Bernacki's declaration establishes a nexus between the disclosure in the specification and the results presented in his declaration. Those results and Dr. Bernacki's opinion are summarized above in connection with this supplemental response to the utility rejection and are relied upon here to rebut the examiner's enablement rejection.

Dr. Knox's declaration provides additional information regarding some of the results presented in the '167 application. Dr. Knox's declaration is summarized above and is relied upon here to also rebut the examiner's enablement rejection.

Based on these declarations and the arguments previously presented, it is submitted that the specification enables the pending claims.

***Conclusion***

In view of the foregoing, it is believed that all claims now pending this application are in condition for allowance.

However, in the event that the Examiner is of the opinion that all of the rejections have not been overcome or that additional issues remain, Applicant requests an interview before the mailing of the next office action.

Authorization is granted to charge any outstanding fees dues at this time for the continued prosecution of this matter to Morgan, Lewis & Bockius LLP Deposit Account No. 50-0310 (Client-Matter No. 067425-5001-US).

Respectfully submitted,

MORGAN LEWIS & BOCKIUS LLP

Date: June 17, 2008 Richard F. Trecartin

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